

SP-R18 Recreation Activity, Spending, and Associated Economic Impacts

October 25, 2002

1.0 Introduction/Background

An economic impacts study typically characterizes existing economic conditions within a region (or community) and quantifies changes in economic activity, as measured by sales, employment, and personal income, associated with an action that alters the level of economic activity within the region. This study would describe how economic activity generated by recreation use and government spending amount associated with the operations and management of the Oroville Facilities (power and water supply components) and including recreation facilities within the Lake Oroville State Recreation Area [LOSRA], associated concessionaires, the Afterbay, and the Oroville Wildlife Area (Oroville Facilities) and affected downstream reaches of the Feather River affects local and regional economic conditions. A conceptual example of the focus of an economic impact study is provided in Attachment A.

No ongoing or past studies specifically focusing on the economic effects of recreational development and use of the Oroville Facilities have been conducted. The study results will facilitate comprehensively evaluating the socioeconomic effects of existing and projected recreation use and operations and management of the Oroville Facilities and will provide a framework for developing effective recreation-development strategies to potentially enhance economic development in the region.

This study plan provides details concerning the content and scope of the economic impacts study and a description of the analytical approach that will be used to conduct the study. The focus of this first phase study is on “baselining” economic activity conditions associated with recreation use, and operations and management of the Oroville Facilities. This baseline will allow for subsequently evaluating potential changes in recreation use under alternative recreation development and use scenarios. Elements of this study plan include a discussion of the relationship of the study plan to the relicensing project process, and the purpose and need for the study; a description of the scope of the Study Area; a discussion of the general approach to conducting the economic impacts study and the steps required to conduct the study; a description of the study’s results and products; and the study plan’s implementation strategy.

2.0 Study Objectives

The objectives of the economic impacts study are to estimate the effects of spending activity generated by current and projected recreation use, and the operations and management of the Oroville Facilities on local business sales, employment, and personal income. Conducting and presenting an economic impacts assessment will facilitate an understanding of the effects on local and regional economic conditions associated with use and operations and management of recreational facilities in the Oroville Facilities.

Local economic impacts primarily result from spending associated with recreational use of the Oroville Facilities and from spending by government agencies responsible for operations and management of these facilities. As recreation activity levels vary in response to water conditions and other factors, spending by local residents and visitors to the region also change. These spending levels affect local business sales, which

in turn affect employment opportunities and levels of personal income. The economic impacts study will quantify recreation-related spending and spending by key operations and management agencies (i.e., California Department of Water Resources (DWR) and California Department of Parks and Recreation (DPR)) and will assess the associated impacts on local business sales, employment, and personal income within Oroville, Chico, Paradise, Gridley/Biggs, and in unincorporated Butte County related to recreation use and operation and management of the Oroville Facilities.

A secondary objective of the economic impacts study is to gain a better understanding of the relationship between the Oroville Facilities and economic development and growth within the region, particularly focused on the Greater Oroville area. (As defined by the Oroville Chamber of Commerce, the Greater Oroville Area includes the City of Oroville, and the area extending to the unincorporated communities of Oregon City and Cherokee City to the north; Berry Creek, Stringtown, Feather Falls, and Forbestown to the northeast and east; Bangor and Palermo to the south and southwest; and Thermalito to the west.) This understanding will provide a framework for eventually evaluating operating and facility development strategies for improving local economic conditions, including opportunities for public/private partnerships.

The economic impacts study will focus on characterizing existing local and regional economic activity; estimating current levels of business sales, employment, and personal income associated with recreation use and operations and management of the Oroville Facilities; and projecting future changes in business sales, employment and personal income resulting from potential changes in recreation use and management and spending caused by projected growth in visitation to the Oroville Facilities. Economic conditions and impacts will be evaluated for six jurisdictions: the Greater Oroville Area, the Cities of Paradise, Gridley, Biggs, and Chico, and the County of Butte. Direct, indirect, and induced effects on these jurisdictions will be evaluated. Conditions and effects on other jurisdictions within Butte County and outside Butte County will be addressed qualitatively because it is believed that these effects are minor.

3.0 Relationship to Relicensing/Need for the Study

This study is needed to meet the Federal Energy Regulatory Commission's (FERC's) direction for preparing socioeconomic exhibits. Specifically, FERC guidelines indicate that "estimates should be provided for changes in employment and income associated with any anticipated modifications to recreation use in the Study Area, such as whitewater rafting, boating, or fishing." The analysis requires evaluating the effects of changes in the level of use for different recreation activities and management on spending and associated economic activity.

The purpose of the economic impacts study is to determine how existing and projected recreation use of the Oroville Facilities and operations and management of these facilities affects local business sales, employment and personal income levels. Furthermore, the study's purpose is to provide a framework for developing effective strategies to potentially enhance economic conditions in the region. In addition to understanding of the local and regional economic effects of recreation use and operations and management at the Oroville Facilities, the study is needed to comply with FERC guidelines for socioeconomic assessments.

To date, limited information has been compiled to characterize spending and associated economic impacts of recreation use of the Oroville Facilities. A user survey conducted in 1996 by Chico State University (Guthrie et al. 1997) collected information on spending by visitors to the Oroville Facilities.

Estimates of spending by recreationists at other reservoirs and rivers throughout California also are available from numerous studies but are unlikely to provide reliable estimates for this study. Data will need to be collected from recreationists and local businesses to better understand the economic implications of recreation activity at the Oroville Facilities. Existing budgetary information is available for assessing government spending related to operations and management of the Oroville Facilities. Procedures for collecting these data are described in Section 5.0 of this study plan.

4.0 Study Area

Economic impacts associated with recreation activity and operations and management of facilities will be evaluated at the community and county level. The Study Area will include communities in close proximity to Lake Oroville, including the Greater Oroville Area, Paradise, Gridley and Biggs, the City of Chico, and the unincorporated (countywide) area of Butte County. This Study Area would extend beyond the boundary of the FERC project but is necessary to capture the majority of the economic impacts, which result largely from expenditures by the Oroville Facilities recreationists in nearby communities.

Economic impacts resulting from recreation-related expenditures may also be felt in other communities but these effects, are believed to be minor and will be evaluated qualitatively.

5.0 General Approach

Detailed Methodology and Analysis Procedures

The economic impacts study will focus on characterizing existing and projected economic impacts resulting from recreation-related use and operations and management of the Oroville Facilities. Economic impacts will be evaluated for six jurisdictions: the Greater Oroville Area, the incorporated areas of Paradise, Gridley, Biggs, and Chico, and the County of Butte. Direct, indirect, and induced effects will be estimated. The assessment will quantify economic effects for two time periods: 2002 and a single future year of projected recreation use. Sales and personal income effects will be presented in constant dollars, tied to 2002 conditions.

As previously noted, this study represents the first phase of an assessment of potential economic effects resulting from relicensing. The primary goal for this study is to develop appropriate analytical models that can be used for assessing both existing levels of recreation use, and operations and management (baseline conditions) and potential recreation development and enhancement scenarios. These scenarios may involve recreation facility development or resource enhancements that would affect recreation use and management.

The following general assumptions will be key for the economic impacts study:

- Economic activity in areas other than the Greater Oroville Area, Paradise, Gridley, Biggs, Chico, and the County of Butte is largely unaffected by recreation use of the Oroville Facilities;
- The Existing Recreation Use Study and the Projected Recreation Use Study will provide data on existing and projected recreation use of the Oroville Facilities; and
- The economic structure, including the types of businesses, of the affected communities and the County of Butte in the future will be similar to the existing structure.

Task 1—Gather Data

Data needs and sources for this study will include the following:

- Current levels of recreation use and activity, by type of use and activity:

Existing and Projected Recreation Use Studies.

- Spending profiles, by type of user, activity, and location:

Chico State Recreation Use Study (Guthrie et al. 1997), data from the Recreation Surveys, recreation activity and spending data for special events at the lake, and data from studies of other similar resources (reservoirs and rivers). The approach used to collect visitor spending data as part of the Recreation Surveys is described in Attachment B.

- Information on current economic activity and the economic development of the area:

County Business Patterns data, Bureau of Labor Statistics data, Census Bureau data, local Chambers of Commerce, local general plans and economic development plans, local realtors, and interviews with local residents.

- Information on the budgets of key agencies that are involved in the operation and management of the Oroville Facilities

In addition to collecting and reviewing the information above, previous studies and models used by the National Park Service (NPS) and United States Forest Service (USFS) that assessed the economic effects on local economies from recreation and park spending will be reviewed.

Task 2—Conduct Interviews and Surveys

Interviews will be conducted with local businesspersons in Oroville, Paradise, Gridley, Biggs, and Chico to gather preliminary information on patterns of local trade. If necessary, this information will then be used to develop a more comprehensive survey of local businesses to determine sales and purchase patterns and employment requirements. The types of questions that would be asked are identified in Attachment C.

Task 3—Prepare Economic Conditions Report

Data collected from Butte County, Oroville, Paradise, Gridley, Chico, and Biggs will be used to describe existing economic conditions for each jurisdiction. Demographic and socioeconomic characteristics will be described, with particular emphasis placed on identifying types of businesses and levels of employment for businesses affected by existing recreation use of Oroville Facilities. In addition, anecdotal information gathered through interviews with local realtors, Oroville Recreation and Advisory Council (ORAC) members, and long-time residents will be presented to characterize how the past development of recreation use within the Oroville Facilities has affected property values and economic development in the local area.

Task 4—Evaluate Economic Impacts Related to Recreation Use Changes

Several methodological techniques have been used in economic impact studies to estimate economic activity, employment, and personal income effects of public policy changes. The three most commonly used modeling techniques include the application of econometric models, economic base models, and input-output models, as summarized below.

- **Econometric Models:** Typically constructed from time-series data for the region of interest, these models are developed using regression techniques. Systems of equations are developed that relate economic and demographic variables. Application of these models requires sufficient input data to accurately estimate critical relationships, comprehensive and complete data on key socioeconomic variables, and sound theoretical bases for linking different variables together.
- **Economic Base Models:** These models rely on the conceptual distinction between a region's "basic" economic activities (those that are exported to other regions and thus bring income to the region), and "non-basic" activities (those that exist to support the region's population and basic activities). When each activity is measured, usually in terms of employment or income, these two categories of economic activity can be expressed as a ratio. The ratio of non-basic to basic employment can be thought of as a "multiplier" that can be used to forecast changes in non-basic employment from a proposed change in basic employment. A primary challenge with this modeling approach is in distinguishing a region's basic activities from its non-basic activities.
- **Input-Output Models:** Regional inter-industry linkages are the focus of input-output models, which are built from detailed accounts of the money flows between different sectors of the economy. An increase in production in one economic sector leads to smaller production increases in other sectors, which in turn lead to further increases. Input-output models simultaneously consider these inter-sectoral linkages. Most of the "off-the-shelf" input-output models, such as IMPLAN, RIMS, and RSRI, are based on county-level data; however, techniques have recently been developed to scale-down these models to the subcounty or community level (Robison 1997).

Because of the need for community-level analysis, an input-output model of the County of Butte scaled down to the community level will be used for the assessment. The county-level database and modeling system to be initially used in this study is IMPLAN (Impact Analysis for Planning), which was developed by the USFS in cooperation with the Federal Emergency Management Agency (FEMA) and the United States Bureau of Land Management (BLM).

IMPLAN has been used for estimating the employment and income effects of a wide range of public policies, including recreation effects related to hydroelectric relicensing (see www.IMPLAN.com).

A community-level approach to economic modeling, pioneered by Economic Modeling Specialists, Inc, will be used for the analysis. The approach allows for accurately estimating and displaying economic impacts in small communities. Community modeling requires considerable fieldwork to assure accuracy of model components and to develop base data for the community. The approach also conveys a dynamic, through-time dimension, incorporating baseline projections made by state planning authorities (Robison and Mack, 1997).

For the Oroville Relicensing Project, basic economic modeling data will be obtained from the Minnesota IMPLAN Group (i.e., IMPLAN data). Additional details regarding the IMPLAN modeling system are provided in Attachment D.

These data will undergo significant revision in the course of field research. The Butte County economic impact models will be constructed using the general data-collecting and trade-estimating methods outlined in Robison (1997). Additional detail on the approach and its applications can be found in Robison (1995).

Community-level input-output models will be constructed for Butte County and the communities principally impacted by the Oroville Facilities (Oroville, Paradise, Biggs/Gridley, and Chico). The models will be constructed following extensive fieldwork to assure baseline data (e.g., sector-specific employment and earnings) will be generally acknowledged as accurate by community leaders. Given a proposed change in direct economic activity (e.g., a change in visitors or level of operations and management personnel) the models will show the associated impact on community-level jobs and earnings. In addition to individual community impacts, the models will be constructed with an inter-community impact component. A web of intercommunity trade interconnects the communities of Butte County, including trade in local goods and services, and commuting. This means that a change in one community will have repercussions at other communities. This pattern of intercommunity trade, including spillovers from the five focus-communities to the rest of the Butte County, will be built into the model. Direct and indirect impacts will be distinguished.

Developing community-level models for assessing the local economic effects of recreation activity and operations and management of facilities will require collecting data from local businesses to account for trade flows within the county.

For data collection purposes, potentially affected businesses include the following, which will be organized into the more general categories of businesses consistent with industrial sectors in the IMPLAN modeling system:

- Boat Building & Repairing: boat repair businesses
- Miscellaneous Retail Stores: fishing equipment stores, skiing equipment shops, sporting goods stores, drug stores, bait & tackle shops, liquor stores, bicycle dealers, feed stores, tack stores, antique shops
- Food Stores: grocery stores, quick-stop food stores

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- Automotive Dealers & Service Stations: gas stations, auto parts stores, retail marine supply dealers
 - Eating & Drinking Places: restaurants, cafes, taverns
 - Hotels & Lodging Places: hotels, motels, resorts, campgrounds
 - Water Transportation: boat yards, marinas, boat storage
 - Amusement & Recreation Services: boat rental businesses, guide services
 - Building Materials & Gardening Supplies: building and lumber supply stores

Interviews and potential surveys will be designed to collect this information. (See Attachment C for a sample of potential questions.) In addition, economic data by zip code available from the IMPLAN database will be used to characterize local trade patterns, employment, and earnings by type of business.

Task 5—Create Economic Impact Spreadsheet Model and Estimate Impacts

Using Excel or similar spreadsheet development software, an economic impacts spreadsheet model will be developed for each affected jurisdiction incorporating sales-to-employment and sales-to-personal income relationships developed as part of Task 4. The model will be constructed so that it is sensitive to changes in input variables such as levels of visitor spending and use, and recreation facility types and size. Model output will include incremental changes in employment and personal income, by type of business.

Task 6—Prepare Study Plan Summary Report

A report will be prepared describing the estimated current and projected future economic effects of recreation use and operations and management of Oroville Facilities, and will include an evaluation of opportunities for enhancing economic conditions related to relicensing. The report will highlight the spatial aspects of direct spending in the construction and hospitality industries and of associated indirect impacts on communities in Butte County.

Task 7—Revise Study Plan Summary Report and Prepare Final Report

Based on review of the Draft Study Plan Summary Report, the report will be revised in response to comments and a final report will be prepared.

6.0 Results and Products/Deliverables

Results

Results of the study will be used to characterize the economic impacts to the Greater Oroville Area, the incorporated areas of Paradise, Gridley/Biggs, and Chico, and to Butte County of existing and projected recreation use and operations and management of Oroville Facilities. Results, including estimates of sales and personal income for each jurisdiction, will be presented in year 2002 dollars, rounded to the nearest thousand. Results will be presented in both narrative and tabular form.

The results, which will reflect the sensitivity of economic activity to specific levels of recreation use and development, will be used to evaluate possible recreation-development opportunities that could enhance the

economic conditions of affected jurisdictions. This evaluation will be qualitative, with the results described in narrative form.

Products and Deliverables

Study Plan Summary Reports

The results of the tasks performed under the study plan will be in a study plan report incorporating information on background economic conditions and existing and projected economic impacts.

The results of the tasks performed under the study plan will be in a study plan summary report incorporating information on background economic conditions and existing and projected economic impacts. The Study Plan Summary Report would be prepared between March and June 2003. An Interim Report describing baseline economic conditions will be prepared at the end of 2002.

The economic conditions background section will summarize existing economic activity, employment, and personal income by affected jurisdiction. Background information on economic development of the region and how development of recreation facilities affected this growth will be presented in narrative and tabular form. Current recreation use-related effects on economic activity, including employment and personal income effects, will be estimated and presented, and a qualitative discussion of how recreation development of the Oroville Facilities has affected market and assessed values of properties in the vicinity of the Oroville Facilities will be included. Unrealized costs and benefits from development and operation of the Oroville Facilities will not be addressed in the report.

The economic impacts section will present the analysis of a future growth scenario, and will include the revenue-enhancement evaluation. Generally, the Study Plan Summary Report will include the following:

1. Introduction and technical scope of the study;
2. Description of the geographic Study Area;
3. Explanation of key assumptions;
4. Description of data sources, including historical information;
5. Description of analytical methods, including analysis of historical data;
6. Detailed presentation of study results (narrative, tables, graphs, charts);
7. Identification of any complications/data concerns;
8. Conclusions of economic impacts analysis;
9. Evaluation and discussion of potential revenue-enhancement options; and
10. Identification of further research needs.

Resource Database

An economic impact spreadsheet model will be developed as part of the study. This model will be available for future evaluation of relicensing operating and facility development scenarios. The model, however, may need updating to reflect current economic conditions should this analysis lag the original creation of the model by more than a few years. This may require that the model be updated prior to evaluation of operating and facility development scenarios.

7.0 Coordination and Implementation Strategy

Coordination with Other Resource Areas/Studies

This study will require coordination with the following recreation studies: SP-R7—Reservoir Boating Study, SP-R9—Existing Recreation Use Study, SP-R12—Projected Recreation Use, SP-R13—Recreation Surveys, SP-R14—Regional Recreation and Barriers Assessment, and SP-R17 – Recreation Needs.

Issues, Concerns, Comments Tracking and/or Regulatory Compliance

The results of the study will address Socioeconomic Issue 1—improve economic development through recreation opportunities at the Oroville Facilities. It specifically addresses the following recreation and socioeconomic Issues: RE 116, 133, 136, 144, and 148.

8.0 Study Schedule

Data collection: May 2002 through April 2003.

Draft Interim Report due: November 2002.

Data analysis and report writing: May 2003 through September 2003.

Draft Final Report due: October 2003.

Throughout the data collection and analysis phases of this study, the consultant team will meet periodically with a technical review team task force (members not yet determined) to review study progress. It is expected that these meetings would be scheduled at the completion of Tasks 1, 2, and 3, and after more detailed formulation and implementation of the community models occurs. These meetings would occur about every 6 to 8 weeks throughout the data collection and analysis period.

9.0 References

A wide range of existing reports and papers will be reviewed to implement the study, including reports that contain information on spending profiles of recreationists and papers describing the application of community-level economic base and input-output models for assessing local economic impacts. General reference documents are identified in Attachment E. Specific references cited in this study plan are identified below.

Guthrie, R., D.A. Penland, and E. Seagle. 1997. Lake Oroville State Recreation Area Recreational Use Study. Unpublished report, Chico State University, Chico CA.

Robison, H. 1995. Community Economic Impacts and Forest Service Management. Proceedings, 29th Annual Pacific Northwest Economic Conference. May 1995. Missoula, Montana.

Robison, H. 1997. Community input-output models for rural area analysis with an example from Central Idaho. The Annals of Regional Science. Volume 31, pages 325-351.

Robison, H. and R.S. Mack. 1997. A Note on the Use of Job and Income Projections as Backdrops for Input-Output Impact Assessments. *Journal of Regional Analysis and Policy*. 26(2).

ATTACHMENT A. CONCEPTUAL EXAMPLE OF RECREATION-RELATED LOCAL AND REGIONAL ECONOMIC IMPACT ANALYSIS

Conceptually, local and regional economic activity generated by use of recreation facilities can be traced from the provision of recreation facilities to the creation of employment and income opportunities within a region. Recreation development and management activities affect the type and amount of visitation attracted to a recreation site. Changes in facilities and management of facilities produce changes in visitation, which, in turn, alter the location and level of spending by visitors to reach and use facilities. For example, a highly developed site, such as one including a resort with restaurants, boat slips, and boat launching facilities, may attract large numbers of visitors from outside the region who spend on accommodations, restaurant meals, boat rentals, and fuel in the vicinity of the recreation site. Alternatively, an undeveloped campground may attract relatively low numbers of regional users whose spending largely consists of food and gasoline purchases made at home or en route to the site.

Altered spending patterns can influence local economies by changing the location and level of demand for different products and services throughout a region. Recreation trip spending may include expenditures on various goods and services, such as overnight accommodations, restaurant meals, groceries, gasoline, boat fuel, recreation equipment, and clothing. The change in demand associated with the spending generated by a specific type of recreation facility will affect employment and income as businesses adjust to demand changes by hiring and paying additional employees. Sales to recreationists will result in three types of economic impacts on the local and regional economy, as described in the following example:

A family living outside of a region takes a trip to a lake within the region to camp for a week. Before arriving at the lake, they stop at a grocery store in the nearest town and purchase \$150 in groceries. From an economic impact standpoint, the \$150 spent on groceries is counted as sales to the grocery store and an injection of new dollars into the region. Food purchases by all visitors to the lake generate the food store sector's total amount of sales to visitors to the region, resulting in the following three effects on regional employment and income:

- Direct impact: the first round effect of recreation-related spending (e.g., increase in food sales, income to food store owners, wages paid to store employees).
- Indirect impact: the ripple effect of additional rounds of re-spending of the initial recreation-related expenditures (e.g., the effects of purchases of additional goods and services by other firms in sectors supplying goods and services to food stores, such as food wholesalers and transporters).
- Induced impact: further ripple effects generated by employees in directly and indirectly affected businesses spending some of their wages in other businesses (e.g., food store employees spend part of their wages in local businesses whose owners and employees also spend in the local area).

Together, these three effects constitute the full employment and income impact resulting from the use of a given recreation facility. The magnitude and location of this impact will change depending on the type of recreation facilities and opportunities provided by a site.

ATTACHMENT B. APPROACH TO COLLECTING INFORMATION ON VISITOR SPENDING THROUGH RECREATION SURVEYS

Information on spending by visitors to the Oroville Facilities and downstream river reaches will be collected in follow-ups to the on-site reservoir and river surveys. This approach allows for collecting comprehensive and more accurate data without compromising the response and completion rates for the on-site surveys.

At the conclusion of the on-site surveys, interviewees will be asked if they would participate in a brief follow-up survey by telephone (or potentially by mail) to provide some additional information about the costs associated with their trip. The interviewer will explain the importance of this information to the study to encourage their participation. The interviewer will ask for the person's first name and telephone number and arrange for a date and time to contact the interviewee after the trip is completed. The interviewer will provide the interviewee with a complimentary map of the Oroville Facilities, downstream reaches, and surrounding area. The reverse side of the map will identify the types of spending information that we will be requesting. This includes the amount of spending for the entire party for goods and services in different types of establishments in different locations within the study area (Butte County and five community areas). The total spending for the trip, including spending outside the study area also will be asked.

The spending information collected from these follow-up surveys will be evaluated in conjunction with the data collected from the on-site surveys to develop spending profiles. These profiles will include estimates of per-day spending by type of activity, local versus non-local visitors, day users versus overnights, and visitors for special events versus regular visitors.

As part of the household surveys to be conducted by mail/telephone, interviewers will ask about annual household trip-related spending for recreation at reservoirs in northern California and the proportion of that spending associated with recreating at Lake Oroville.

ATTACHMENT C. SAMPLE QUESTIONS FOR LOCAL BUSINESSES

1. Which ONE of the following categories BEST describes your business?

- ☐ Eating/drinking establishment
- ☐ Hotel/motel
- ☐ Food store
- ☐ Gasoline/service station
- ☐ Marine/boats and accessories business
- ☐ General sporting goods
- ☐ Specialty fishing store
- ☐ Variety/department store
- ☐ Other (Please Specify: _____)

2. Approximately what percentage of your annual expenditures on goods and services to conduct your business is made:

Within the Greater Oroville Area? _____%

Within Butte County (including the Greater Oroville Area)? _____%

3. How many persons did you employ (both full time and part time) in 2001?

_____ PERSONS

4. What percentage of these employees live:

Within the Greater Oroville Area? _____%

Within Butte County (including the Greater Oroville Area)? _____%

5. This last question pertains to your annual sales over the past 10 years (1991-2000). Please indicate below how your annual sales have changed over the past 10 years relative to 1991. Using 100 as the index for 1991, please indicate the percentage increase or decrease in annual sales relative to sales in 1991. For example if your sales in 1992 increased by 10%, you would write in 110 for 1992. If your sales then decreased by 5% in 1993 compared to 1991 sales, you would write in 95 for 1993. (Note: if you started your business since 1991, use that year as the 100 index).

<u>Year</u>	<u>Sales Index</u>	<u>Year</u>	<u>Sales Index</u>
1991	100	1996	_____
1992	_____	1997	_____
1993	_____	1998	_____
1994	_____	1999	_____
1995	_____	2000	_____

Do you have any comments on this survey or on how recreation at Lake Oroville affects your business?

Thank you for your assistance.

ATTACHMENT D. DESCRIPTION OF IMPLAN INPUT-OUTPUT MODELING SYSTEM

Input-output analysis is a means of examining relationships within an economy, both between businesses and between businesses and final consumers. It captures all monetary market transactions for consumption in a given time period. The resulting mathematical formulae allow examination of the effects of a change in one or several economic activities on an entire economy (impact analysis).

The primary input variable for input-output analysis is the dollar change in purchases of products or services for final use (i.e., final demand). Final demand changes drive input-output models. Industries respond to meet demands directly or indirectly (i.e., by supplying goods and services to industries responding directly to final demand changes). For a recreation analysis, final demand changes include changes in levels of visitor spending for recreation trip-related goods such as food, gasoline, accommodations, and recreation goods and services. The primary output variables are predicted changes in direct, indirect, and induced output, employment, and income for the affected industries within a study area.

IMPLAN (Impact Analysis for PLANning) is a computer-driven input-output model originally developed by the USDA Forest Service in cooperation with FEMA and BLM to assist the USFS in land and resource management planning. The IMPLAN model incorporates the mathematical formulae needed to conduct economic impact analyses for projects and policies in different geographic regions of the US. The IMPLAN system has been in use since 1979, evolving from a main-frame, non-interactive application to a menu-driven microcomputer program that is completely interactive. In 1987, the Minnesota IMPLAN Group, formed at the University of Minnesota, began work on developing IMPLAN databases for regions within the country. In 1993, Minnesota IMPLAN Group, Inc. was formed to privatize the development of IMPLAN data and software.

The IMPLAN system comprises two components: the software and the database. The software performs the necessary calculations, using study area data, to create regional input-output models. The databases, which are available at the state, county, and zip code area level, and which are periodically revised using updated socioeconomic data, provide all the information needed to create regional IMPLAN models. As mentioned above, the primary input variables needed to conduct an impact analysis using IMPLAN are changes in final demand for products or services. For example, the incremental increase in annual visitor (i.e., from out of the region) expenditures on hotel accommodations associated with development of a nearby recreation facility would represent a change in final demand for the hotels and motels industrial sector. The primary outputs would include the direct change in sales (output), employment, and income for the hotels and motels sector and the indirect and induced change in output, employment, and income for other sectors supplying goods and services to hotels and motels and their suppliers.

Source: Minnesota IMPLAN Group, Inc. 2000. IMPLAN Professional Version 2.0—Social Accounting and Impact Analysis Software: User Guide, Analysis Guide, and Data Guide. 2nd Edition. June, 2000. Stillwater, MN.

ATTACHMENT E. EXISTING INFORMATION

1. Economic study of equestrian activity in Marin County (Sonoma State University)
2. Butte County General Plan
3. Local economic development plans (Butte County and incorporated areas)
4. Banking on Nature: The Economic Benefits to Local Communities of National Wildlife Refuge Visitation
5. 1996 National and State Economic Impacts of Wildlife Watching
6. Social, economic, environmental, and leisure assessment database
7. The Demand for and Net Economic Value of Waterfowl Hunting in California's Sacramento and San Joaquin Valley Refuges (John Loomis)
8. A Travel Cost Analysis of Waterfowl Hunting in the Central Valley
9. National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (U.S. Fish and Wildlife Service)
11. NPS and USFS studies of economic benefits to local communities from park and recreation spending (identified by Dangermond Group)
12. The Impact on Local Economies of Spending by Visitors to California State Parks (California State Parks)
12. Applying Economic Multipliers in the Recreation Setting (California State Parks)
13. Financial Feasibility and Regional Economic Benefits of Recreation at the Domenigoni Valley Reservoir (Foster Associates, with ERA and Dangermond Group)
14. Travel spending data (California Division of Tourism)
15. Visitor Reactions to the USFWS Fee Demonstration Program (USFWS)
16. Socioeconomic Impacts of Redman (Operation Bass) Tournaments
17. US Census demographic and economic activity data
18. Taxable sales by county and city (California Board of Equalization)
19. County business patterns data
20. Hunting and fishing revenues (California Fish and Game)
21. Economic Analysis for the Programmatic EIS/EIS on the Central Valley Project Improvement Act (USFWS)
22. An Economic Assessment of Alternative Water-level Management for Shasta and Trinity Lakes (Southeastern Forest Experiment Station)
23. Economic Analysis for the Programmatic EIS/EIS on the Trinity River Fishery Restoration Program (USFWS)
24. Delta Recreation Survey, CDPR, 1997